

SEQUENCE LISTING

<110> DAICEL Chemical Industries LTD.

<120> Novel (R)-2,3-butanediol dehydrogenase

<130> D1-A0009

<140>

<141>

<150> JP 2000-333363

<151> 2000-10-31

<160> 17

<170> PatentIn Ver. 2.1

<210> 1

<211> 1143

<212> DNA

<213> Pichia angusta

<400> 1

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acggacttga aagaattcac atattctgga ggtcctgttt tttccctaa acaaggcacc 180
aaggacaaga tttcgggata cgaacttcct ctctgtcctg gacatgaatt tagcggAACG 240
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ttgggtggtg ccagcggcgg ttttgcggag tacgtgttt acggtgagga ccacatggc 480
aagctgccag actcgattcc cgacgatatt ggagcactgg ttgagcctat ttctgttgcc 540
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gatccttcta catgtgacga cgcaaatgtcttcaagg ctatgggcc ggagaacgag 780
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 gcgcgcaaga tgattacagg caaagtccac ctaaaggacg gagtcgagaa gggctttaaa 1080
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 taa 1143

<210> 2

<211> 380

<212> PRT

<213> *Pichia angusta*

<400> 2

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1	5	10	15
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Thr Val Pro Glu Pro Glu Ile Lys Asn Pro Asn Asp Val Lys Ile Lys

20	25	30
----	----	----

Val Ser Tyr Cys Gly Ile Cys Gly Thr Asp Leu Lys Glu Phe Thr Tyr

35	40	45
----	----	----

Ser Gly Gly Pro Val Phe Phe Pro Lys Gln Gly Thr Lys Asp Lys Ile

50	55	60
----	----	----

Ser Gly Tyr Glu Leu Pro Leu Cys Pro Gly His Glu Phe Ser Gly Thr

65	70	75	80
----	----	----	----

Val Val Glu Val Gly Ser Gly Val Thr Ser Val Lys Pro Gly Asp Arg

85	90	95
----	----	----

Val Ala Val Glu Ala Thr Ser His Cys Ser Asp Arg Ser Arg Tyr Lys

100	105	110
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Asp Thr Val Ala Gln Asp Leu Gly Leu Cys Met Ala Cys Gln Ser Gly

115 120 125

Ser Pro Asn Cys Cys Ala Ser Leu Ser Phe Cys Gly Leu Gly Gly Ala

130 135 140

Ser Gly Gly Phe Ala Glu Tyr Val Val Tyr Gly Glu Asp His Met Val

145 150 155 160

Lys Leu Pro Asp Ser Ile Pro Asp Asp Ile Gly Ala Leu Val Glu Pro

165 170 175

Ile Ser Val Ala Trp His Ala Val Glu Arg Ala Arg Phe Gln Pro Gly

180 185 190

Gln Thr Ala Leu Val Leu Gly Gly Pro Ile Gly Leu Ala Thr Ile

195 200 205

Leu Ala Leu Gln Gly His His Ala Gly Lys Ile Val Cys Ser Glu Pro

210 215 220

Ala Leu Ile Arg Arg Gln Phe Ala Lys Glu Leu Gly Ala Glu Val Phe

225 230 235 240

Asp Pro Ser Thr Cys Asp Asp Ala Asn Ala Val Leu Lys Ala Met Val

245 250 255

Pro Glu Asn Glu Gly Phe His Ala Ala Phe Asp Cys Ser Gly Val Pro

260 265 270

Gln Thr Phe Thr Thr Ser Ile Val Ala Thr Gly Pro Ser Gly Ile Ala

275 280 285

Val Asn Val Ala Val Trp Gly Asp His Pro Ile Gly Phe Met Pro Met

290 295 300

Ser Leu Thr Tyr Gin Glu Lys Tyr Ala Thr Gly Ser Met Cys Tyr Thr
 305 310 315 320

Val Lys Asp Phe Gin Glu Val Val Lys Ala Leu Glu Asp Gly Leu Ile
 325 330 335

Ser Leu Asp Lys Ala Arg Lys Met Ile Thr Gly Lys Val His Leu Lys
 340 345 350

Asp Gly Val Glu Lys Gly Phe Lys Gin Leu Ile Glu His Lys Glu Asn
 355 360 365

Asn Val Lys Ile Leu Val Thr Pro Asn Glu Val Ser
 370 375 380

<210> 3

<211> 10

<212> PRT

<213> Pichia angusta

<400> 3

Lys Pro Gly Asp Arg Val Ala Val Glu Ala

1 5 10

<210> 4

<211> 21

<212> PRT

<213> Pichia angusta

<400> 4

Ala Thr Ser His Cys Ser Asp Arg Ser Arg Tyr Lys Asp Thr Val Ala

1 5 10 15

Gln Asp Leu Gly Leu

20

<210> 5

<211> 6

<212> PRT

<213> Pichia angusta

<400> 5

Phe His Ala Ala Phe Asp

1

5

<210> 6

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: an artificially synthesized primer sequence

<220>

<221> misc_feature

<222> 6, 9, 15, 18

<223> n is a or c or g or t.

<400> 6

aarccngng aymngngtngc

20

<210> 7

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:an artificially synthesized primer sequence

<220>

<221> misc_feature

<222> 9, 12

<223> n is a or c or g or t.

<400> 7

tcrtcraang cngcrtgraa

20

<210> 8

<211> 530

<212> DNA

<213> Pichia angusta

<400> 8

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 tgctgtgcgt cgctgagctt ctggggttt ggtggcgtca gggcggttt tgccgagiac 180
 gtcgtttacg gtgaggacca catggtaaag ctgccagact cgattccgaa cgatatttgg 240
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 ggtcagacgg ccctggttct tggaggaggt cctatggcc ttgcacccat tcttgctctg 360
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 gcaaaggaac tggccgtga agtgttgcat ccttgcgtatc gtgacgcacgc aaatgcgtt 480
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<210> 9

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:an artificially synthesized primer sequence

<400> 9

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26

<210> 10

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:an artificially synthesized primer sequence

<400> 10

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27

<210> 11

<211> 107

<212> DNA

<213> Pichia angusta

<400> 11

gaatttagcg gaacggtggt cgaggttggc tctgggtgtca caagtgtgaa acctggtgac 60

agagtcgcag ttgaagctac gtcgcattgc tcggacagat cgcatgc 107

<210> 12

<211> 706

<212> DNA

<213> Pichia angusta

<400> 12

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 aatcgccgtc aatgtggccg tttggggaga ccacccaatt ggattcatgc caatgtctct 180
 gacttaccag gagaaatacg ctaccggctc catgtctac accgtcaagg acttccagga 240
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 ttgcattat ggtggccggc ctcccaggaa attaatctat gatttacata tggactcgat 540
 tacgttaacag gtgctgagca ttataataatt acctactatt ttctaaatta gtaaattgtt 600
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 ctgtgttca acagatttgc ttgcttagagt ctgtgaactg gaattt 706

<210> 13

<211> 620

<212> DNA

<213> Pichia angusta

<400> 13

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 gaattttccg cgctaatcca gtcaacggta acaagaccag gatggagttt gaatatttct 180
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 gaataatggc ttatgtccga gatgtggagg cagtctggc agactgtgcg gcaattaaat 420
 aagacgcgga tgcgtgcac cagagtgaat aaaggaattt caattcgata gcaaatattt 480
 ctgtataat gagtggccatg atttattacc gatgttgcgatc agcccggtt tttttacaca 540
 ataggaaaaaa aaggactcga ttatgttgcgatc ctgtgcata tcacggccaga cataataagt 600
 caccgttta ctccgcgttgc 620

<210> 14

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:an artificially synthesized primer sequence

<400> 14

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<210> 15

<211> 523

<212> DNA

<213> Pichia angusta

<400> 15

ctgcagcgcc agacataata agtcacccgt ttaactccgca tgcactcccc cactgatcat 60
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ggaaatttagc cggcactcgg ttgtgagaga ttatocata taaaccacaa aatcctatct 180
ccctttgcc aatgaaaggta ttactttatt acggtaaaaa cgatattcgc tactccgaaa 240
cggttcctga accggagatc aagaatccca acgtatgtca gatcaaagtc agctatttgt 300
gaatctgtgg cacggacttg aaagaattca catattctgg aggtccgtt tttttcccta 360
aacaaggcac caaggacaag atttcgggat acgaacttcc tctctgtcct ggacatgaat 420
ttagcggAAC ggtggcgtcag gttggctctg gtgtcacaag tgtgaaacct ggtgacagag 480
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<210> 16

<211> 30

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence:an artificially synthesized primer sequence

<400> 16

tgctcatgaa aggtttactt tattacggtt

30

<210> 17

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: an artificially synthesized primer sequence

<400> 17

cagtctagat taggaaacct cgttcggt

28